

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 2, 1973

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 11th day of April 1973

FORWARDED TO:

Honorable Alexander P. Butterfield)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

✓ SAFETY RECOMMENDATIONS A-73-11 thru 13

✓ The National Transportation Safety Board's current investigation of a fatal air carrier accident involving an Eastern Air Lines, Inc., L-1011, N310EA, which crashed near Miami, Florida, on December 29, 1972, has revealed two areas in which we believe early corrective action is needed to prevent the recurrence of similar accidents.

The airplane involved crashed about 6 minutes after the crew had executed a missed approach in order to check the status of the nose gear. The green, gear-safe annunciator light had failed to illuminate when the gear handle was placed in the gear-down position during the initial approach.

Our investigation indicates that at the time of the accident, all three flight crewmembers were engrossed in an attempt to ascertain whether the landing gear was safely extended, and they were not aware until just before impact that the airplane had departed the 2,000-foot clearance altitude. The flight engineer was in the forward avionics center, located beneath the cockpit floor and just forward of the nose wheelwell, attempting to ascertain visually, by means of an optical sight tube, whether the gear was locked down.

The flight engineer was not successful in his attempt to view the rods on the nose landing gear linkage which indicate whether the gear is locked down. If this is to be done at night, a light in the nose wheelwell must be turned on by a switch on the captain's eyebrow panel. The person who attempts to view the indicator rods must pull a knob located over an optical sight in order to remove a cover on the far end of the sight. In this case, the flight engineer twice noted that he could see nothing -- that it was "pitch dark." We do not know whether (1) the captain ever attempted

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to turn on the light (the crew seemed to think that the light should be on whenever the landing gear was extended), (2) the light was inoperative, or (3) the flight engineer properly operated the knob which removes the optical tube cover. In any event, the Safety Board believes that this unsuccessful attempt to ascertain whether the nose landing gear was locked down contributed to the distraction of the flightcrew during this flight. For this reason, the Safety Board believes that this system should be operable by one man; therefore, the switch for the wheelwell light should be located near the optical sight. Furthermore, a placard outlining the proper use of the system should be installed near the light switch and the knob for the optical sight cover.

The reason for the descent from an altitude of nearly 2,000 feet has not yet been determined. The cockpit voice recorder (CVR) indicates, however, that the altitude select, alert system sounded shortly after the initial descent. This alert system is comprised of a single C-chord and a flashing amber alert light. When the airplane departs the selected altitude by ± 250 feet, the C-chord sounds once, and the amber light flashes continuously. However, on the Eastern Air Lines configuration, this light is inhibited from operating below 2,500 feet radar altitude. Thus, on the accident airplane, the only altitude alert system warning to the crew that the airplane was descending was the single C-chord. There is no evidence on the CVR to indicate that the crew ever heard the audible warning as the airplane maintained a continuous descent into the ground.

Therefore, the Safety Board recommends that the Federal Aviation Administration:

- ✓ 1. Require the installation of a switch for the L-1011 nose wheelwell light near the nose gear indicator optical sight.
- ✓ 2. Require, near the optical sight, the installation of a placard which explains the use of the system.
- ✓ 3. Require that the altitude select alert light system on Eastern Air Lines-configured L-1011 airplanes be modified to provide a flashing light warning to the crew whenever an airplane departs any selected altitude by ± 250 feet, including operations below 2,500 feet radar altitude.

Members of our Bureau of Aviation Safety will be available for consultation in the abovematter if desired.

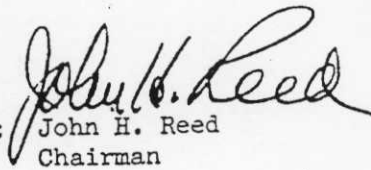
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These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; McAdams, Thayer, Burgess, and Haley, Members, concurred in the above recommendations.

By: 
John H. Reed
Chairman

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